299-E33-41 (A4867)
Log Data Report

Borehole Information:

Borehole:	299-E33-41 (A4867)		Site:	Near BX WMA Fence line	
Coordinates (WA St Plane)		GWL[1] (ft):	None	GWL Date:	08/07/07
North (m)	East (m)	Drill Date	TOC Elevation	Total Depth (ft)	Type
137369.94	573707.19	03/91	657.95 ft	266	Cable tool

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Stainless steel	3.43	6.625	6.375	0.125	3.43	0.5
Stainless steel	0.9	N/A	4	0.125	0.9	244.9
Ss #10 slotted screen	None	N/A	4	0.125	244.9	261.0

Borehole Notes:

Log Data Reports for this borehole have been previously issued in August 2002 and September 2006 (DOE-EM/GJ1330-2006). This report is an update based on additional logging conducted in August 2007.

GWL has changed from 256.9 ft in May 2002 to 257.9 ft on August 22, 2006 and to 257.95 ft on August 7, 2007.

In 1991, logging with the Radionuclide Logging System (RLS) unambiguously indicated U-235/238 contamination between 220 and 242 ft. Other detections near the MDL existed sporadically from approximately 75 ft to 170 ft. In 1997, the borehole was re-logged with the RLS. A comparison with the 1991 data suggested an influx of uranium into the area of the borehole from approximately 155 to 220 ft and increased concentrations between 220 and 242 ft. Baseline data were collected with the SGLS in May 2002. Comparison of the 2002 SGLS results with the 1997 data suggested the U-235/238 concentrations did not change significantly between 1997 and 2002. SGLS log data acquired in 2006 appear to confirm this assessment. The current logging effort is made to re-log the entire borehole to assess any changes that may have occurred in uranium concentrations since 2002. Neutron moisture logging could not be performed because of the borehole completion details.

Logging Equipment Information:

Logging System:	Gamma 1G	Type:	SGLS (35%) SN: 34-TP10951A
Effective Calibration Date:	11/22/06	Calibration Reference:	HGLP-CC-003
		Logging Procedure:	HGLP-MAN-002, Rev. 0

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2	3	4	5
Date	08/07/07	08/08/07	08/08/07	08/09/07	08/13/07
Logging Engineer	Spatz	Spatz	Spatz	Spatz	Spatz
Start Depth (ft)	170.0	26.0	170.0	265.5	227.0
Finish Depth (ft)	25.0	4.0	190.0	226.0	189.0
Count Time (sec)	100	100	200	200	200
Live/Real	R	R	R	R	R
Shield (Y/N)	N	N	N	N	N
MSA Interval (ft)	1.0	1.0	0.5	0.5	0.5
ft/min	N/A[2]	N/A	N/A	N/A	N/A
Pre-Verification	AG132CAB	AG133CAB	AG133CAB	AG134CAB	AG135CAB

Log Run	1	2	3	4	5
Start File	AG132000	AG133000	AG133023	AG134000	AG135000
Finish File	AG132145	AG133022	AG133063	AG134079	AG135076
Post-Verification	AG132CAA	AG133CAA	AG133CAA	AG134CAA	AG135CAA
Depth Return Error (in.)	+ 0.5	0	+ 0.5	0	- 1
Comments	Fine-gain adjustment after files -102 and -125.	No fine-gain adjustment	No fine-gain adjustment	No fine-gain adjustment	No fine-gain adjustment

Logging Operation Notes:

Logging was conducted with no centralizer on the sonde. Measurements are referenced to the top of casing.

Analysis Notes:

Analyst:	P.D. Henwood	Date:	08/01/07	Reference:	GJO-HGLP 1.6.3, Rev. 0

Pre-run and post-run verifications for the logging system were performed before and after each day's data acquisition. Acceptance criteria were met. However, efficiency loss by the detection system was observed as the lower control limits for the 609 and 1461 keV energy peaks were exceeded each day. The detection system ultimately failed August 14, one day after logging was completed; this failure precluded repeat data and extended count measurements from being acquired for this logging event. The efficiency loss is determined to be approximately 5 to 10 % resulting in systematic lower radionuclide concentrations being calculated. Because the efficiency loss was systematic and there are two prior SGLS logging events in this borehole, it was determined the data were sufficient for comparison with prior events for the purpose of establishing potential changes in radionuclide profiles. For these reasons it was determined that re-logging the borehole was unnecessary. Comparison of ratios between net counts at 1001 keV (manmade uranium) and 1461 keV (K-40) indicate that uranium values are unchanged from 2006 to 2007.

SGLS spectra were processed in batch mode using APTEC SUPERVISOR to identify individual energy peaks and determine count rates. Concentrations were calculated using the EXCEL worksheet template identified as G1GNov06.xls. A casing correction for 0.125-in.-thick casing was applied to the SGLS data. This casing thickness is the same used to correct the 2002 and 2006 data. A correction for water was applied to the data below 258 ft.

Results and Interpretations:

Manmade radionuclides detected in this borehole for the current logging event are U-238 and U-235. Cs-137 was also detected at a few sporadic depth locations near its MDL of approximately 0.1 pCi/g.

Evidence of processed uranium (U-238 and U-235) exists from approximately 120 to 247 ft and from 86 to 91 ft. U-238 concentrations are determined by the Pa-234m energy peak at 1001 keV. U-235 is directly measured by the 185.72 keV energy peak. The maximum concentrations for U-238 and U-235 are approximately 715 and 34 pCi/g, respectively at 237.5 ft. The maximum concentrations in 2006 were approximately 777 and 38 pCi/g. These slightly lower concentrations may be caused by the system efficiency change discussed above. However, the profiles of uranium throughout the borehole are almost identical suggesting no contaminant changes since 1997.

The naturally occurring KUT log data reflect well completion materials. Bentonite crumbles are emplaced in the annular space around the borehole to approximately 174 ft. Between 174 and 240 ft, a bentonite slurry and from 240 to 243, bentonite crumbles are reported.

Comparisons of spectral gamma log data of manmade radionuclides acquired in 1991, 1997, 2002, 2006, and 2007 at approximately 238 ft in depth are included in the table below and a plot. The uranium data in the table are the maximum concentrations reported in the respective years.

Year	1991	1997	2002	2006	2007
U-238	161 pCi/g	982 pCi/g	675 pCi/g	777 pCi/g	715
U-235	4 pCi/g	39 pCi/g	34 pCi/g	38 pCi/g	34

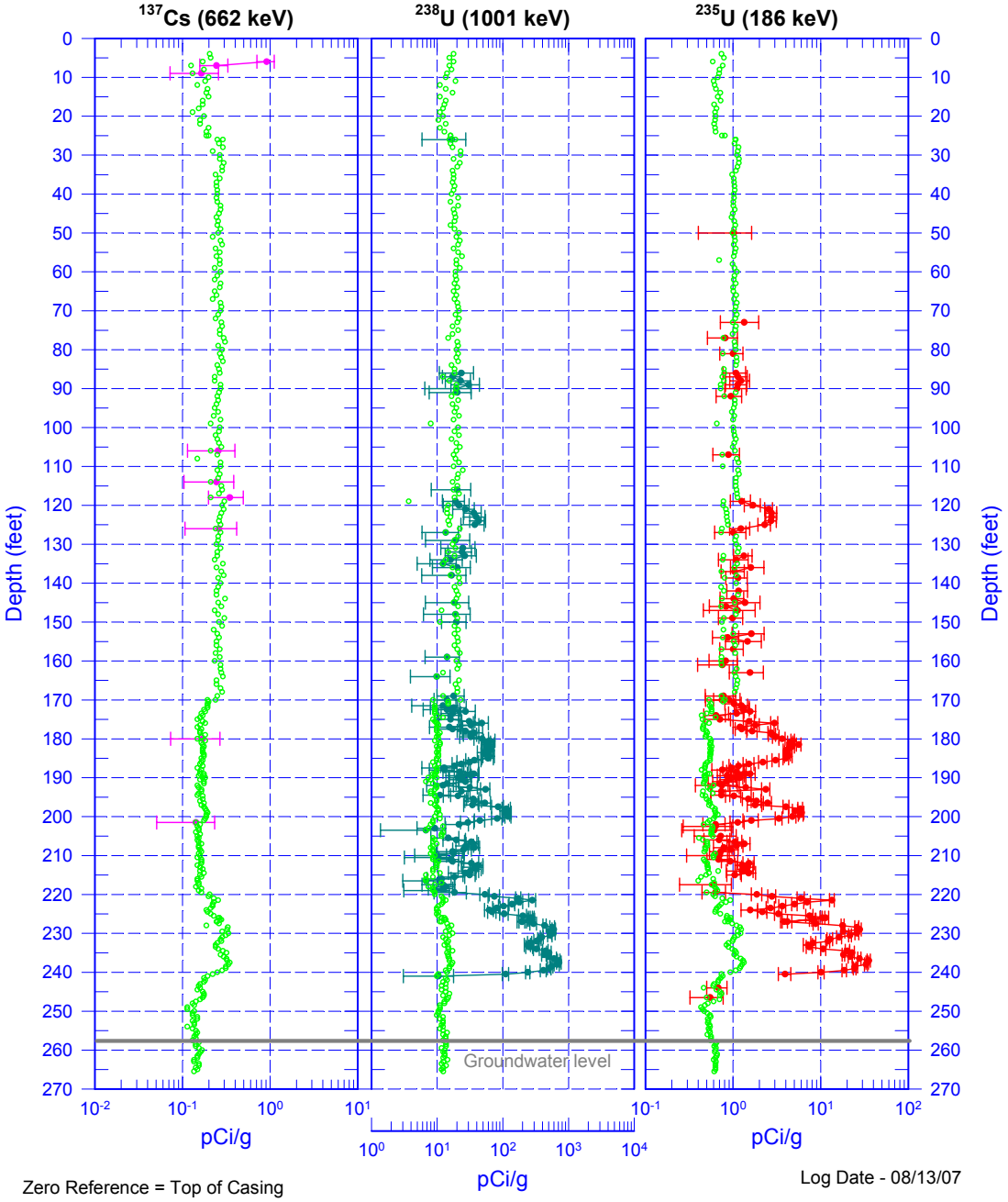
An influx of uranium occurred generally between 220 and 240 ft in depth between 1991 and 1997. The uranium profile remains essentially unchanged since 1997.

List of Log Plots:

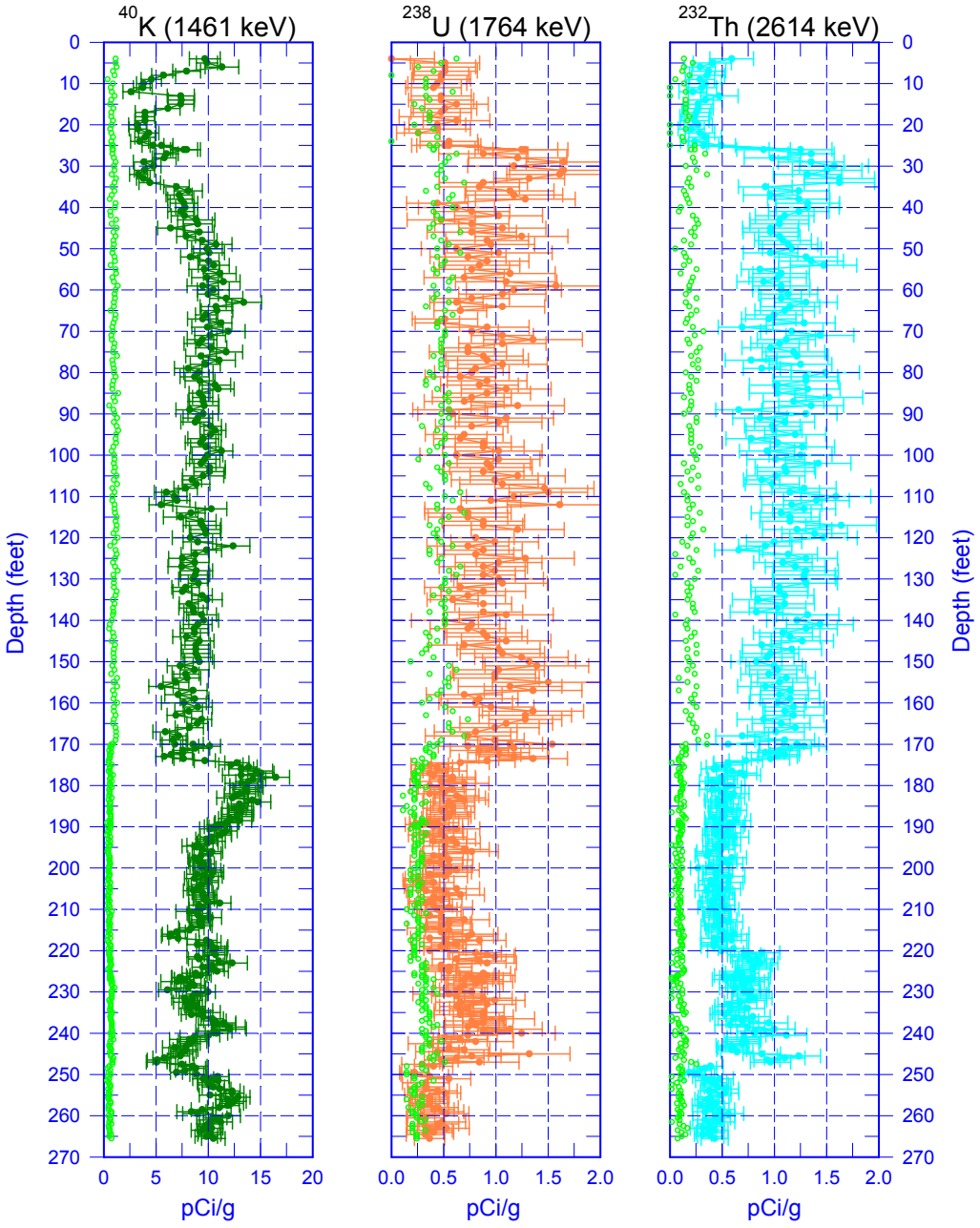
Manmade Radionuclides
Natural Gamma Logs
Combination Plot
Total Gamma & Dead Time
Comparison of Manmade Radionuclides (log scale)
Comparison of Manmade Radionuclides (linear scale)

[1] GWL – groundwater level
[2] N/A – not applicable

299-E33-41 (A4867)
Man-Made Radionuclides



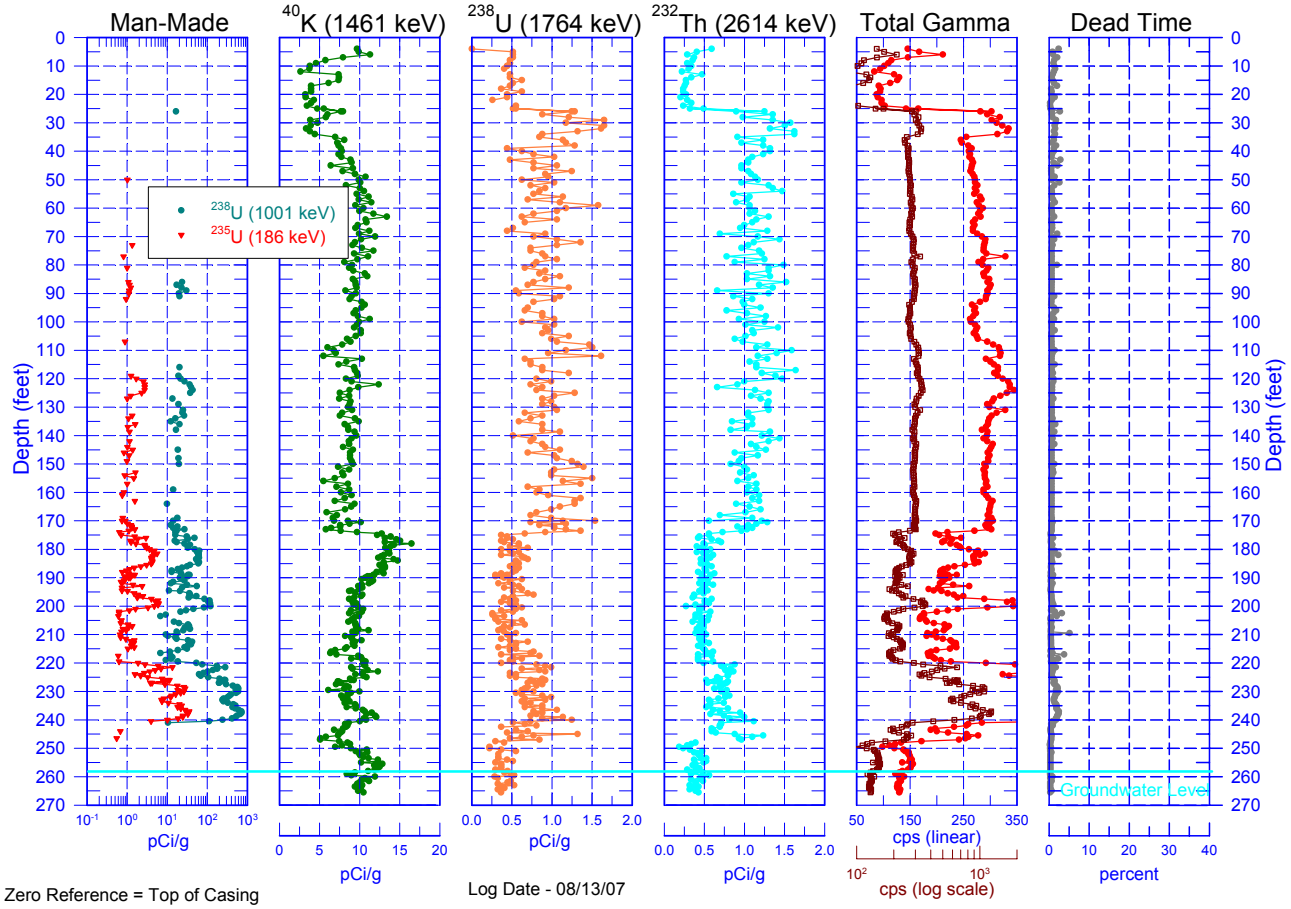
299-E33-41 (A4867)
Natural Gamma Logs



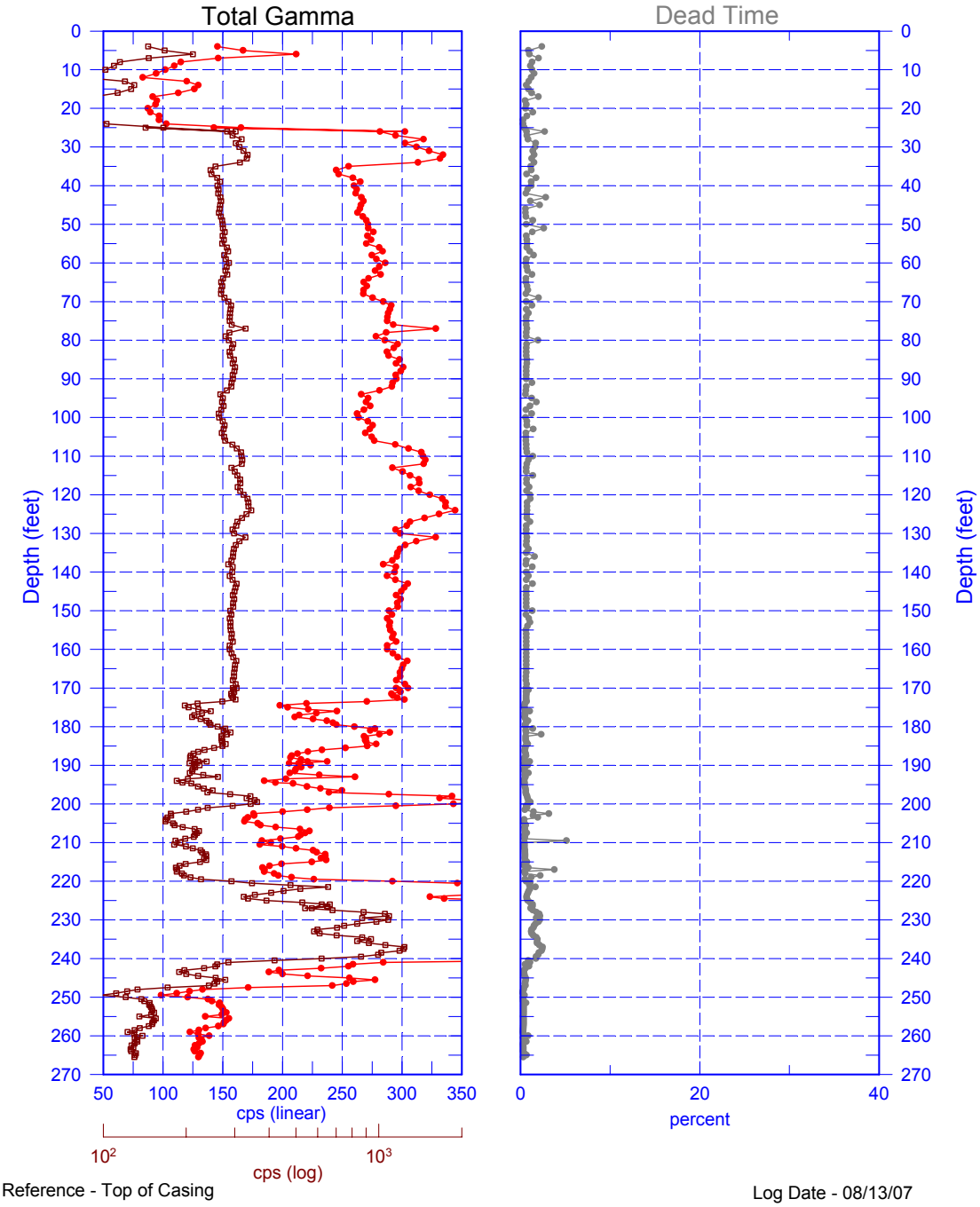
Zero Reference = Top of Casing

Log Date - 08/13/07

299-E33-41 (A4867) Combination Plot



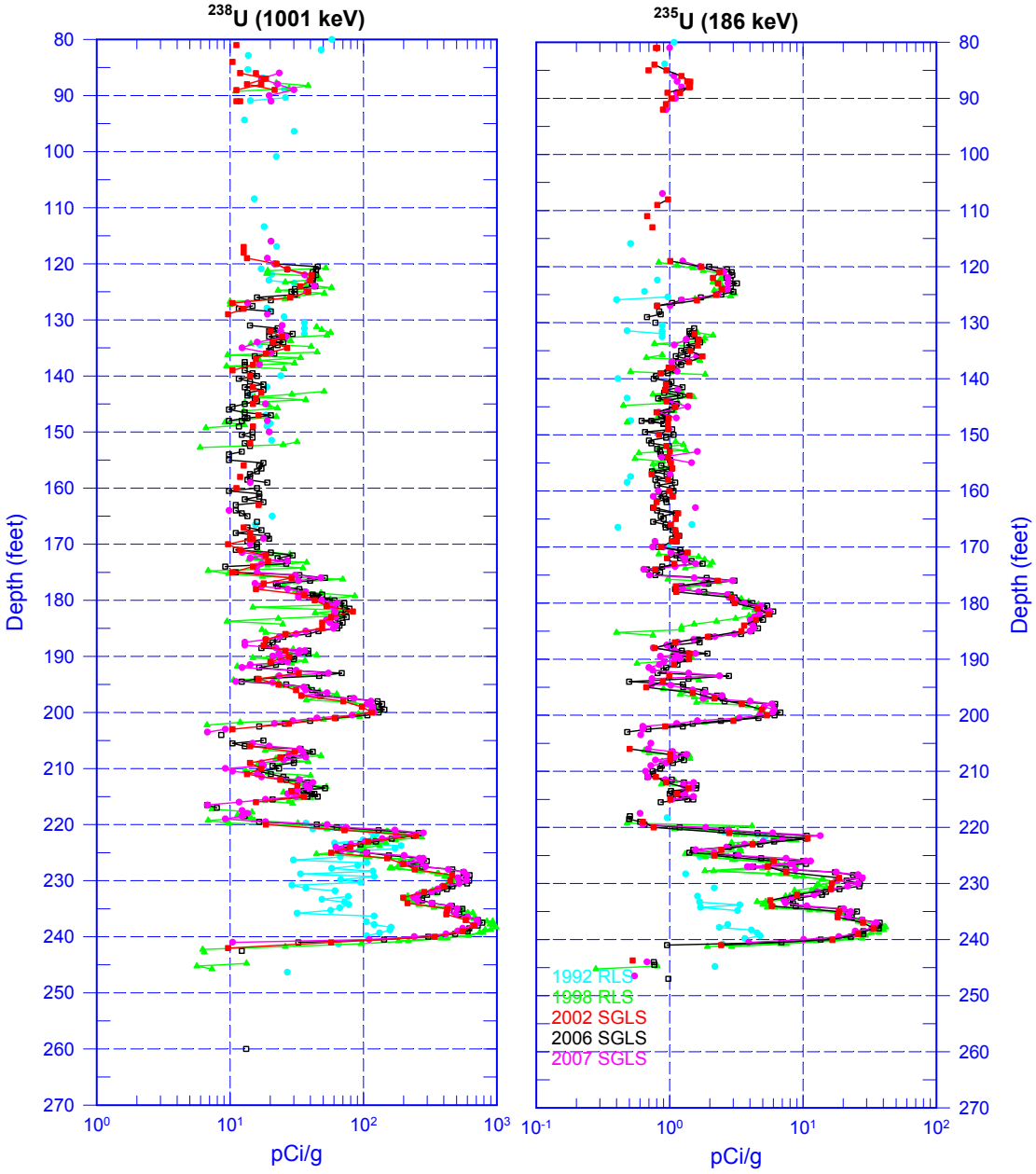
299-E33-41 (A4867)
Total Gamma & DeadTime



Reference - Top of Casing

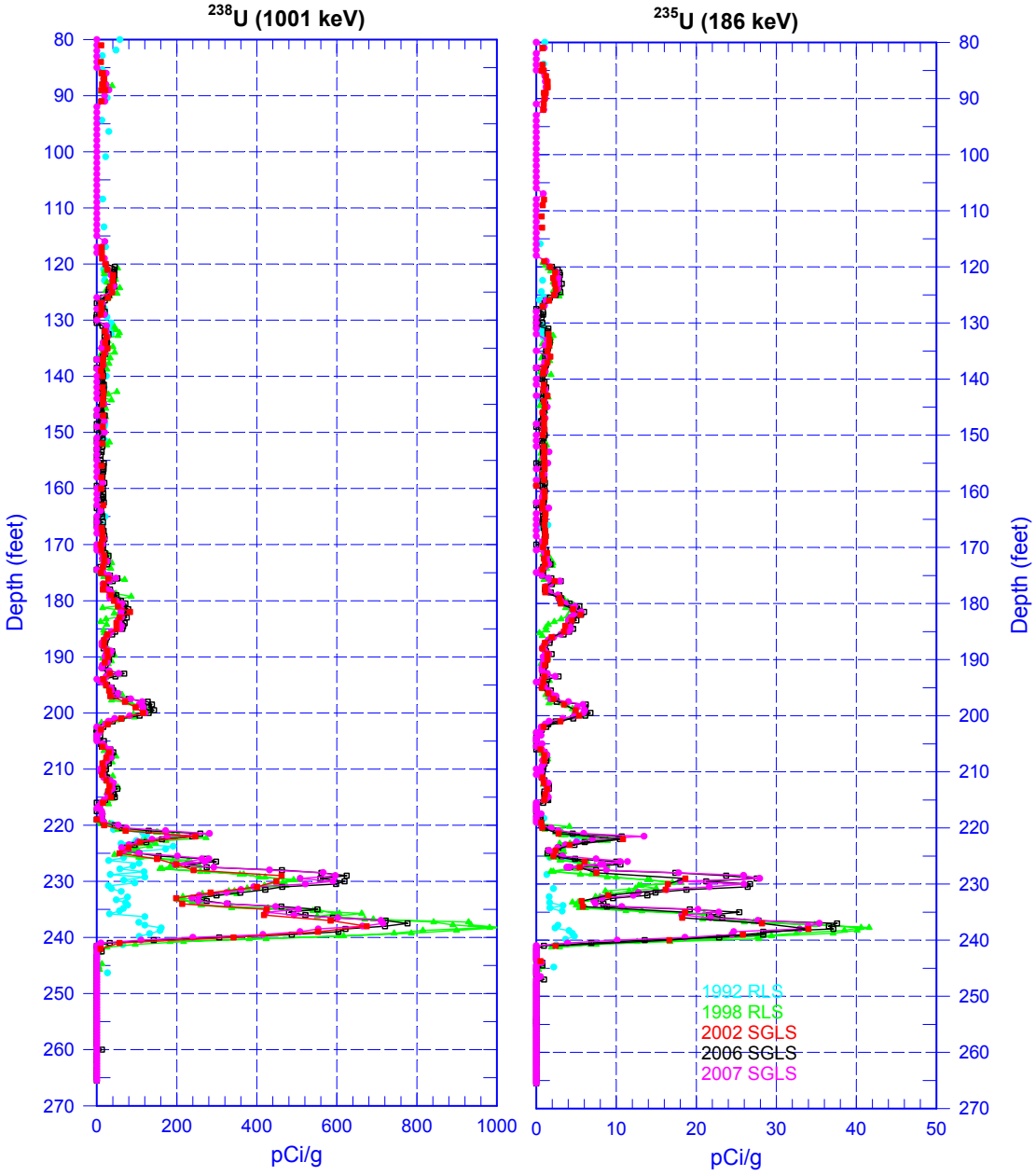
Log Date - 08/13/07

299-E33-41 (A4867)
Comparison of Man-Made Radionuclides



Zero Reference = Top of Casing

299-E33-41 (A4867)
Comparison of Man-Made Radionuclides



Zero Reference = Top of Casing